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### Money in Finance

by

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## **ABSTRACT**

This paper begins by defining, and distinguishing between, money and finance, and addresses alternative ways of financing spending. We next examine the role played by financial institutions (e.g., banks) in the provision of finance. The role of government as both regulator of private institutions and provider of finance is also discussed, and related topics such as liquidity and saving are explored. We conclude with a look at some of the new innovations in finance, and at the global financial crisis, which could be blamed on excessive financialization of the economy.

**Keywords:** Money; Money of Account; Finance; Financial Instruments; Financial Institutions; Financial Innovation; Financialization; Liquidity; Saving; State Money; Chartalism; Shadow Bank; Hyman Minsky; Securitization; Robert Clower

**JEL Classifications:** B14, B15, B22, B52, E12, E40, E42, E50, E51, E52, G14, G21

This entry will begin by defining, and distinguishing between, money and finance. It will also address alternative ways of financing spending. We next examine the role played by financial institutions, such as banks, in provision of finance. The role government plays both as regulator of private institutions and as provider of finance will be discussed. Related topics such as liquidity and saving will also be explored. We conclude with a look at some of the new innovations in finance, and at the global financial crisis that could be blamed on excessive financialization of the economy.

The term “money” is often used in two different ways, first to designate the money of account and second in reference to specific money-denominated assets that fulfill several important functions associated with money (medium of exchange, means of payment, and store of value). For example, in the United States the money of account is the dollar, the measure of nominal value designated by the state. Many important economic values are denominated in dollars: taxes, prices (including wages, fees, and fines), and court-ordered restitutions. In addition, the term “dollar” is also used to describe the paper notes issued by the Federal Reserve Bank (and coins issued by the Treasury). Most economists would also include bank deposits in their definition of money—certainly demand deposits and perhaps time deposits—against which checks can be written that can be used in payment. Over the past half century, other “nonbank” or “shadow bank” financial institutions have developed a wide variety of substitutes for bank demand deposits, some of which allow holders to write checks for payment. Increasingly, credit cards and debit cards are used in payments. All of these developments appear to make it difficult to define money with precision.

However, another approach is to use the term money to signify the unit of account, and to designate as “money things” the IOUs (debts or liabilities) denominated in the money of account. Some money things can be used as media of exchange for purchases and means of payment to retire debt; all can be used as stores of value (albeit some are more risky than others). We can think of a hierarchy of money things, with the government’s own IOUs (central bank notes and treasury coins, but also central bank reserves—taken together these are called high-powered money or the monetary base) at the top. Just below that would be the deposit liabilities of banks and other financial institutions with direct access (or indirect access through correspondent banks) to the

central bank. Other (nondeposit) short-term liabilities of financial institutions would be below that, then would come the short-term liabilities of nonfinancial corporations. Finally, at the bottom would be the short-term liabilities of households and small businesses. Taking this approach, one would be following Hyman Minsky (see Minsky 2008), who always said that anyone can create money (things), the problem lies in getting them accepted.

There are three dimensions to this pyramid. As we move down from government liabilities through to household liabilities, liquidity of the money things declines. This is one of the characteristics that makes a money thing function as a medium of exchange and means of payment. Highly liquid cash can be used immediately in purchase and payment. On the other hand, the IOU of a nonfinancial firm or household is not very liquid, and must be converted to a more liquid money thing before it can be used in payment.

This leads to the second dimension: convertibility. Most modern governments do not promise to convert their IOUs to anything, having long ago abandoned the gold standard. (To be sure, many governments, especially in the developing world, do promise conversion to a foreign currency such as the US dollar. In that case, we can think of the US dollar as the apex of the pyramid.) Bank checking deposits are normally made convertible on demand (hence, they are called demand deposits) to government high-powered money. Other short-term bank liabilities are convertible after some wait, often with a penalty for early “withdrawal” (conversion). And so on. Household IOUs, such as mortgages and other consumer debt, are convertible to bank liabilities—although conversion is not necessarily easy to accomplish.

Finally, as we move down the pyramid, agents use liabilities of those higher in the pyramid for payment: households and firms make payments using bank liabilities, while banks make payments to each other using high-powered money.

There are two universal laws of credit and debt (which are the two sides of the IOU—it is a credit for the holder and a debit for the issuer). The first is that credits and debts are denominated in a unit of account—almost always a state money of account (dollar in the United States). The second is that the issuer of an IOU must accept her own IOU back in payment, or what is called “redemption.” For example, if one has a loan held

by a bank, one can always repay that loan by delivering back to the bank one of its own IOUs, by, for example, writing a check on a deposit at the bank. If one owes taxes to the government, one can always pay taxes by delivering high-powered money (the government's debt) in payment. (The debtor "redeems himself" by handing back to his creditor the creditor's own debt—or a third party debt the creditor is willing to accept. The similarity of the terminology to religious concepts is not a coincidence. See Atwood [2008].) If a debt-issuing economic entity refuses to redeem its own IOU when it is submitted in payment that is a default.

We can thus think of a network of credits and debits—entries on balance sheets—all denominated in the money of account. One is able to cancel one's debts by delivering another entity's debts (often an entity higher in the money pyramid)—either a second party's debt (the party holding one's debt as a credit) or a third party's debt (for example, a household uses a bank IOU to make a payment on a car loan debt by the auto finance company). Banks often intermediate these payments, for example, delivering high-powered money (in the form of bank reserves) to government on behalf of taxpayers (while it appears to the taxpayer that taxes are paid by writing checks on bank accounts, in reality the taxes are paid by debiting the bank's reserves from its account at the central bank.) Similarly, a household pays down its credit card balance by writing a check—with the bank making the payment for the household using reserves while debiting the household's deposit account.

To conclude this section, it is apparent that drawing a sharp dividing line between what we want to call a "money thing" versus what we designate merely a "debt thing" is neither possible nor desirable. All are IOUs denominated in the money of account, and all are "redeemable," accepted in payment of debts held by their issuer. Only some can be used directly in payment (using a third party debt in purchase or in debt payment). They have varying degrees of liquidity, which is one of the factors determining whether they will circulate among third parties. For many transactions, banks operate as intermediaries, making payments for clients, because they operate a major part of the national payments system in all countries.

We now turn to finance. If one wants to make a purchase, there are three options for financing the transaction: use of one's income, use of one's assets, or issuing debt.

(The sovereign currency-issuing government is in a different situation—as discussed below—as it is the only entity that makes payments only by issuing its own IOUs.) Income is a flow over time—so many dollars per hour, week, month, and year. This is accumulated as a stock, for example, as a demand deposit held at a bank. If one’s weekly pay is \$100, one could use that income to finance purchases equal to \$100 each week, writing checks against deposits. One’s employer’s deposit account would be debited as wages are paid; one’s own deposit account would be credited when income is received, and then debited as groceries were purchased; and finally the grocer’s deposit account would be credited. In all these transactions we see the “money thing” simply shifting pockets as the employer pays wages, as the employee makes purchases, and as the grocer makes sales. The grocer might then pay the food manufacturer, who had advanced inventories to fill the grocer’s shelves and who now uses the receipt (taking the form of a credit to the manufacturer’s bank deposit account) to retire a short-term loan that had been used to make the wage payment in the first place. At that point, the loan and bank deposit are simultaneously cancelled.

We can think of that as a closed monetary circuit, from creation of bank money when the loan is made through to its destruction when the loan is retired. As the money deposit makes its circuit, the wage bill, household consumption, purchase by the grocer, and sales by the manufacturer all get financed. Obviously the circuits can get much more complicated, and need not close. Still, this simple example lets us see how income leads to monetary receipts that are used to finance spending. The notion of “velocity” of circulation applies as the single demand deposit created in the initial bank loan is used to finance the whole stream of purchases and payments until the loan is finally retired.

The second method of financing is to use accumulated assets. If one spends only \$90 per week out of an income of \$100, then savings will accumulate as unspent deposits. An individual can directly spend accumulated savings held as deposits, running down financial wealth. If savings are held in a less liquid form (say, corporate bonds) then they must first be sold (exchanged for a bank deposit) before they can be used to finance expenditure. This is where liquidity returns as a useful concept—how quickly can accumulated wealth be converted, with little loss of monetary value, to a medium of

exchange. Of course, one's ability to finance expenditure by running down wealth is limited to one's wealth and ability to convert it.

Finally, one can finance expenditure by going into debt—issuing an IOU to obtain a spendable credit. This can be done by approaching a bank to take out a loan. From the borrower's perspective, the loan is a liability, issued to obtain a credit to a bank deposit (an asset of the borrower). From the bank's perspective, the loan is an asset held against its demand deposit liability. The bank makes profits by charging a higher interest rate on the loan than it pays on the deposit. When the borrower spends the deposit, her account is debited and the seller's account is credited. Because the seller will normally use a different bank, there will be a transfer between banks—the bank that made the original loan will accept a check drawn against it, leading to a transfer of reserves to the bank presenting the check. (Recall from above that banks make payments to each other using high-powered money.) We need not go further into the details of these check clearing procedures except to note that a bank losing reserves through clearing will normally issue another liability to replenish reserves.

The important thing to note is that in all three scenarios examined, “money things” are involved in financing expenditures. As Robert Clower (1965) famously remarked, money buys goods and goods buy money, but goods do not buy goods. In other words, in our monetized economies, barter (“goods buying goods”) is not normal practice. That does not mean that it does not occur, but rather that for most economic analysis it is not relevant. Also note that because all money things are debts, the monetary purchases always involve debts. Even when one is spending income, one is using another's debts to make purchases. If no one were willing to issue debt, no monetary payments could be made. Still we can distinguish between use of “internal finance” and use of “external finance.” In the first case, one finances spending using one's existing credits (spending reduces the credits one holds on others), while using external finance means increasing one's debt.

Obviously these have very different implications. Use of external finance commits one to servicing debt—paying interest and eventually retiring principle. As Minsky put it, debt represents a prior commitment of future cash flows that will be generated through income receipts or by selling assets. Since there is some uncertainty

about future income flows, as well as the revenue to be generated by selling assets, it is possible that the debtor will not be able to meet these commitments. At that point, either refinance or default becomes necessary. In other words, use of external finance rather than relying on internal finance is risky—both for the borrower as well as for the creditor. This is a key insight behind Minsky’s financial instability hypothesis—the argument that over a run of good times, confidence leads to growing debt that ultimately gets too big to service. Defaults can generate a debt-deflation process, such as the one in the 1930s analyzed by Irving Fisher (1933).

There are many fallacies surrounding finance, and probably no topic in economics is more confounding than money. One problem arises if transactions are analyzed as if they are barter. As we have discussed, in reality, most transactions—and all monetary transactions—involve debt. Even if no external finance is used, expenditure still requires that someone has issued debt.

Even government spending is financed by debt—in the case of a government that issues its own currency, spending always takes place through high-powered money issue. While it is not generally recognized, government spends by issuing debt and taxes by redeeming it—taxpayers pay their taxes by delivering back to government the debt issued when government spent. In other words, taxes cancel government’s debt—they do not really “finance” government spending, which is actually financed by issuing liabilities. When government spending exceeds taxes, we call that a deficit and it allows accumulation by the nongovernment sector of credits against the government. Since private sector credits and debits necessarily cancel one another, there is no net financial wealth except for claims on government. Thus, we can think of government deficit spending as the source of net nongovernment sector financial wealth—the government’s deficit “finances” nongovernment savings held in the form of government debt.

It is commonly believed that “savings finance investment.” Indeed, we discussed above the possibility that an individual finances spending (which could be investment spending) by running down financial wealth that was accumulated whilst saving. True enough. But the saving of the individual is in the form of claims on others—debt issued by others to allow spending to take place. At the aggregate level, saving is not really a source of finance—a point made by J.M. Keynes (1964), simplified as the “paradox of



thrift” taught through the textbooks: reducing consumption in order to increase saving only reduces aggregate income and results in no additional saving. Instead, saving is increased by spending more on investment. The textbooks, however, generally do not explain how the extra investment is financed. The answer is that if we want a higher national income and gross domestic product through higher investment, it must be financed through additional debt. This additional investment will then create higher income and, through the marginal propensity to save, additional aggregate saving—accumulated as credits against debtors.

Above we looked at a simple circuit of money and admitted that circuits might not close so that monetary debts are not cancelled. Saving can be thought of as resulting when a circuit does not close, so that debt was left outstanding. If that finances individual spending (including investment) it merely allows the circuit to close. Saving can never be a net source of finance at the aggregate level—when accumulated saving is spent, that merely returns debt to its issuer. New finance requires new debt.

There is also a myth about a “deposit multiplier,” according to which bank lending and deposit creation requires a raw material—central bank reserves—that are lent out. It is claimed that individual banks cannot “create money,” but with a fractional reserve system, banks in the aggregate create a multiple of deposits (and loans) for every dollar of reserves provided by the central bank. This is a fallacy. Banks do not lend reserves. When a bank accepts a borrower’s IOU, it creates a demand deposit—as discussed, a “money thing”—through a keystroke, simultaneously creating a bank liability and an asset in the form of a checkable deposit in the name of the borrower. No raw material (other than electrons on a computer tape) is required. In some countries, there is a legal reserve requirement; in all cases, since banks promise to convert deposits on demand they either hold reserves or ensure they can obtain reserves as needed to meet redemptions. Yet, banks make loans and then seek reserves—in private markets (the Fed funds market in the United States) or at the central bank (often through overdraft facilities)—and not the reverse. In any case, almost all central banks in developed countries now operate with an explicit overnight interest rate target, supplying reserves on demand to ensure the target is hit within a discretionary range. Providing more reserves than banks want will not encourage lending but rather will place downward

pressure on the overnight interest rate. This is why the US Fed has found that adding a trillion dollars of reserves to the private banking system has not prodded it to increase lending—put simply, banks do not need reserves to make loans but, rather, need good borrowers.

Government regulates, oversees, and protects financial institutions. Access to the central bank as lender of reserves—and, especially, lender of last resort—is essential to keeping bank liabilities liquid by ensuring banks can always convert them to high-powered money on demand. This ensures “par clearing”—protected bank liabilities always trade one-for-one against government liabilities. That is essential for maintaining a well-functioning payments system. This is further guaranteed by deposit insurance—government ensures that even if a financial institution becomes insolvent, its insured liabilities can be redeemed against government liabilities at par. With such a guarantee, markets cannot possibly “discipline” the activities of protected institutions—who can use insured deposits to finance positions in risky assets. Hence, government regulates the kinds of assets banks can purchase using government insured liabilities, and oversees bank practices to reduce risk. When all goes well, government regulation and supervision channel bank activities to serve the public purpose. In recent years, that most certainly has not been the case—as government often abandoned its responsibilities on the misguided belief that for some reason “markets” would guide financial institutions to provide financial services that not only generated private profits but also met the public interest. That did not work. It remains to be seen what shape financial reforms will take.

Above we offered a definition of money—or more precisely, of money things. Throughout history, economists have tended to give pride of place to a very narrow definition of money: high-powered money plus checkable deposits (called M1 in the United States). It has been argued that there is a close relation between this narrowly identified money and spending. Banks can create “money” and finance spending, but other financial institutions cannot—they can only create substitutes for money, intermediating between banks and final users. The explosion of financial innovation of the past three or more decades should have finally put such views to rest. In truth, all economic agents can be analyzed as if they were “banks”—taking positions in assets by issuing liabilities. Bank liabilities are highly liquid while the liquidity of liabilities issued

by other financial and nonfinancial firms can be enhanced through a variety of methods developed over the past forty years.

For example, large corporations discovered they could issue commercial paper to finance operations at interest rates below those charged by banks on loans. To enhance liquidity of commercial paper, they obtained back-up lines of credit from banks. When commercial paper matures, if holders decide they do not want to “roll over” into new commercial paper, the issuing firm can use its line of credit to pay off the paper. In this manner, the corporation only needs access to bank credit if something goes wrong in the commercial paper market. A given quantity of M1-type money (issued by banks) can finance a larger amount of economic activity because other money things (issued by shadow banks and nonfinancial corporations) are used.

As Minsky always argued, the fundamental activity of banking is “accepting”—determining who is creditworthy by accepting IOUs. It is true that they “intermediate” by accepting liabilities of borrowers and then issuing their own IOUs that are more liquid. But there is no alchemy involved by which they lend out reserves created by the central bank. They also take positions in assets (loans, corporate and government bonds) while issuing liabilities (deposits and short-term paper) just like all other economic units. But as they also operate much of the payments system, they make payments for their customers—which is what a loan really is, a payment made by a bank for its customer.

As another example, the household can finance most of its consumption over the course of the month through use of credit cards—running up debt. The retailers do not have to hold the consumer debt directly because the credit card company uses its bank to make payments on behalf of the customer. At the end of the month, the household’s bank account is credited by the amount of wages received, the household writes a check to the credit card company, and the household’s bank makes the payment to the credit card company (actually, to its bank—with reserves shifting). In general outline this how economic activity gets financed mostly outside the banking system, with banks entering only when the payments system is involved.

As discussed above, banks also intermediate between taxpayers and government tax collectors—allowing taxpayers to write checks on deposit accounts and delivering for them high-powered money the government “redeems” for tax payments. When

government spends, the intermediation is reversed: government spending leads to credits to bank deposits and to bank reserves. Hence, taxes serve the purpose of redeeming government liabilities—taxpayer liabilities are reduced and government liabilities outstanding are also reduced, with banks intermediating.

Recent innovations have added layers of complexity—what can be called financialization and leveraging of economic activity. Perhaps the best example is securitization of home mortgages. Very briefly, home mortgages—like all consumer loans—were low in the money pyramid. Mortgage loans were made by banks and specialized thrifts that carefully underwrote (assessing creditworthiness) the loans. The lenders knew the borrowers and the local real estate markets. Mortgage loans almost never went bad, but they were very illiquid—long-term and heterogeneous (the lending bank knew the borrower’s individual characteristics)—hence, almost unmarketable so they were held to maturity. For a variety of reasons that we will not investigate, mortgage origination got separated from holding the debts, as the “originate to distribute” model took over. Instead, mortgages were “securitized”—packaged and sold. They became marketable, made liquid through standardization (standardized loan terms and use of credit scores to assess risk) and diversification (mortgages originated across the country in many real estate markets would eliminate problems caused by a downturn in one region). Moreover, the securities were “sliced and diced” in complex ways to offer riskier tranches, interest-only pieces, and principle-only pieces. It all became even more complicated because the worst tranches of securities could be resecuritized, and then re-recuritized; even more esoterically, it was possible to construct purely virtual financial instruments (synthetic collateralized debt obligations) that were bets that securitized mortgages would either remain solvent or go bad.

The result was that each mortgage—serviced out of income flows of the homeowner—might serve as collateral behind all sorts of securities, and securities of securities, and securities cubed, and all manner of other derivatives that were essentially bets on default. If we look at aggregate numbers, each dollar of US income was devoted to servicing five dollars of debts and securities, and unknown dollar amounts of derivatives. Worse, the terms of the debts were—literally—impossible for homeowners to meet. The whole superstructure of finance began to collapse in late 2007. How it will

all turn out is impossible to predict at this juncture. While much of the attention has been directed to mortgage-backed securities, all kinds of debts were also securitized—everything from credit card debt to student loans. Most of this took place outside normal banking—which helps to explain why the bank share of financial markets fell to less than a quarter. Again, this drives home the point made above that focusing on banks and narrow definitions of “money supply” is a mistake. Still, much of the problems that originated off the balance sheets of banks came right back to haunt them due to various kinds of guarantees and other linkages provided by banks to the so-called shadow banking sector.

Asset-backed securitization is just one important innovation. Another is “junk bonds”—or what is euphemistically called “high yield” debt. The leveraged buy-out craze began in the 1980s, but was actually much bigger in the 2000s. The basic idea is this: find a corporation that has not used much external finance—a so-called “cash cow” that generates free revenue that is not committed to debt service. Then issue bonds that commit future revenue streams to servicing debt—debt that is issued in a hostile takeover. The buyer of the firm uses the revenue stream of the target to finance the purchase. Often the buyer then strips the firm of assets—selling them to reap profits—and leaves the hollowed hulk with a heavy debt burden that cannot be serviced out of its revenue stream. Michael Milken is the best-known protagonist—and he served prison time for improprieties—but the practice has become mainstream. The long-term implication is that firms must protect themselves by taking on debt—no one wants to be a sitting cash cow.

There are many other reasons why debt ratios have risen over time. Attitudes toward debt changed, as memories of the Great Depression faded. In the United States, at least, inflation-adjusted median wages did not rise since the early 1970s, leaving households reliant on debt to finance rising living standards. State and local governments found that commitments rose faster than revenues—forcing them to take on more debt. Ditto pension funds, that increased leverage, took on riskier portfolio allocations, and paid big fees to money managers who promised to obtain high returns to cover pension obligations. More generally, baby boomers demanded high returns on financial assets

even as economic growth suffered lower long-term prospects—which required greater leverage ratios and more financialization.

In short, in the context of slower economic growth, an aging population, and chronically higher unemployment and underemployment, the economic system that generates income and output was expected to service an ever-larger financial superstructure as reliance on external finance grew. Claimants on that financial superstructure included all the financial institutions (and their traders and management), as well as the growing number of retirees who expected high living standards based on financial claims. At the peak, financial institutions captured 40% of all corporate profits, debt ratios reached five times GDP—and if derivatives are included the debt ratio is several orders of magnitude higher (estimates of total notional values of derivatives peaked at \$700 trillion globally just before the crisis). This is what is meant by financialization—a financial system that is far too large relative to the size of the economy.

There are complex micro and macro reasons for this development. We have already mentioned Minsky's belief that the relative tranquility of the postwar period would naturally lead to more risk-taking, including debt leveraging of income flows. In addition there was growing competition between regulated banks and the relatively unregulated shadow banks. At times, one or the other would have the upper hand, but competition not only led to innovations, but also to deregulation and eventually to self-regulation. These innovations stretched liquidity, increased leverage and layering of debt upon debt, and ultimately led to the collapse of 2007. Also at the macro level were the various trends that depressed wages in developed nations, that increased inequality of the distribution of income and wealth, and that produced serial bubbles (and busts) of asset prices. All of these in one way or another fueled growth of debt that became too big to service out of income flows. So far, the financial crisis has not changed the situation in any significant way. The last time the economy was financialized to a similar extent—back in 1929—the Great Depression led to substantial reforms that downsized finance and put it under substantial government control. Only time will tell whether that will happen this time around.

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